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U. S. DEPARTMENT OF AGRICULTURE.
DIVISION OF ENTOMOLOGY.
BULLETIN No. 19.

AN ENUMERATION

OF THE

PUBLISHED

SYNOPSES, CATALOGUES, AND LISTS

OF

NORTH AMERICAN INSECTS;

TOGETHER WITH OTHER INFORMATION INTENDED TO ASSIST THE STUDENT OF AMERICAN ENTOMOLOGY.

WASHINGTON:
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1888.

LETTER OF SUBMITTAL.

DEPARTMENT OF AGRICULTURE,
DIVISION OF ENTOMOLOGY,
Washington, D. C., May 15, 1888.

SIR: I have the honor to submit for publication Bulletin No. 19 of this Division, being an enumeration of the published synopses, catalogues, and lists of North American insects; together with other information to assist the student of American Entomology.

Respectfully,

C. V. RILEY,
Entomologist.

Hon. NORMAN J. COLMAN,
Commissioner of Agriculture.

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SYNOPSES, CATALOGUES. AND LISTS OF NORTH AMERICAN INSECTS.

INTRODUCTION.

Inquiries regarding the works most useful for the determination of our native insects, as also about the most useful general works of reference, are among the most constantly recurring ones received by the Entomologist; but satisfactory and short replies are in most instances impossible, for the reason that the information is not contained in a few comprehensive works, but is scattered through many different periodicals and other publications. A complete list of such works, even of those pertaining to a single Order of insects, is too long to be given in an ordinary letter, and to obviate the difficulty experienced in such correspondence this bulletin has been prepared.

It was not our intention to compile a complete bibliography of the classification of North American insects, but to give briefly the references to such works and papers as are most useful for the identification of our insects. Thus, we originally planned to give only the titles of monographs or synopses of families or subfamilies and to reject all papers which contained disconnected descriptions of new species, or revisions and synopses of isolated genera. But while preparing the bulletin it was felt to be advisable to include smaller synoptic papers. For instance, several large families, *e. g.*, the Scarabæidæ among the Coleoptera, have recently been quite carefully revised, but the literature is in the form of synopses of single genera which, in their aggregate, form a more or less complete monograph of the whole family. In this case either these smaller synopses had to be mentioned in this bulletin or the whole family had to be omitted.

On the other hand, many of the monographs here mentioned are antiquated, so as to be of little value at the present time; or they are monographs comprising the genera and species of all countries, and difficult for the student of the American fauna to use, from the fact that the descriptions of the American genera are almost lost amongst the mass of foreign material.

It were futile to attempt to discriminate in such an enumeration between the more useful and the more or less useless, but as a rule we would recommend to the student to consult rather the later than the

older publications. Unfortunately there are marked exceptions to the rule; as a few of the latest synoptic and descriptive papers by the younger authors are most insufficient and unsatisfactory. We have added a list of the special works on Economic Entomology, and also of those published by the U. S. Entomological Commission and by the Department.

There are a good many comprehensive classificatory works on European insects, but the almost complete absence of such works in this country is a great bar to the progress of entomology and is the inevitable outcome of the immense mass of material to be worked up and of the comparatively small number of workers in monographic entomology. As will be seen from the contents of this bulletin, the publications of this kind even in Orders most worked up, as in Coleoptera and Lepidoptera, are greatly scattered; while in the less popular Orders comparatively little has been done. Yet with the many earnest workers now in the field we may hope to see this present want met at no very remote period, and if the present bulletin should prove of temporary service it will not have been prepared in vain, though intended chiefly to relieve the Division of a great deal of letter-writing.

The preparation of the titles was originally placed in charge of Mr. B. Pickman Mann, but was in such shape when he left the office as to require almost entire rewriting. This has been mainly done by Mr. E. A. Schwarz, though other members of the Divisional force have assisted.

C. V. R.

PUBLISHED SYNOPSES, CATALOGUES, AND LISTS OF NORTH AMERICAN INSECTS.

COMPREHENSIVE WORKS MOST USEFUL FOR THE STUDY OF NORTH AMERICAN INSECTS.

H. C. C. BURMEISTER.—Handbuch der Entomologie. Berlin, 1832–'55. 5 vols. Vol. I. Allgemeine Entomologie.

The first volume treats of general entomology; Vol. II, part 1, of the Hemiptera; part 2, of Orthoptera; the remaining volumes of Coleoptera.

The first volume has been translated by W. E. Shuckard, under the title: Manual of Entomology. 1 vol. London, 1836.

J. O. WESTWOOD.—An introduction to the modern classification of insects, founded on the natural habits and corresponding organization of the different families. 2 vols. London, 1839–'40.

THOMAS SAY.—Complete writings on the Entomology of North America; edited by John L. Le Conte. New York, 1859.

H. A. HAGEN.—Bibliotheca Entomologica. Die Litteratur über das ganze Gebiet der Entomologie bis zum Jahre 1862. Leipzig, 1862.

A. S. PACKARD.—Guide to the study of insects. Henry Holt & Co., Philadelphia and New York. Many editions. (First edition, Salem, 1869.)

THE STANDARD NATURAL HISTORY. Edited by John Sterling Kingsley. Boston, S. E. Cassino & Co., 1884–'85.

Volume II contains the insects, which are treated by the following authors: *Hymenoptera*, J. H. Comstock and L. O. Howard; *Coleoptera*, Geo. Dimmock; *Lepidoptera*, H'y Edwards and C. H. Fernald; *Diptera*, S. W. Williston; *Orthoptera*, C. V. Riley; *Hemiptera*, P. R. Uhler; *Neuroptera*, A. S. Packard; *Arachnida*, J. H. Emerton.

HYMENOPTERA.

I.—CATALOGUES.

E. T. CRESSON.—Catalogue of the described species of North American Hymenoptera. <Proc. Entomol. Soc. of Philadelphia, Vol. I, 1861–'63.

E. T. CRESSON.—Catalogue of Species and Bibliography. Part 2 of Synopsis of the Hymenoptera of America, north of Mexico. <Transactions of the Am. Entomol. Soc., Supplementary volume, 1887. Phila., 1887.

II.—GENERAL WORKS ON CLASSIFICATION.

E. T. CRESSON.—Synopsis of the families and genera of the Hymenoptera, north of Mexico, together with a catalogue of the described species and bibliography. <Transactions Am. Entomol. Society, Supplementary volume, Part I, 1887.

The second part contains the Catalogue of Species and Bibliography.

III.—MONOGRAPHS AND SYNOPSES.

TENTHREDINIDÆ AND UROCERIDÆ.

EDWARD NORTON.—Catalogue of the described Tenthredinidæ and Uroceridæ of North America. <Trans. Amer. Ent Soc., Vol. I, 1867, pp. 31–84 and 193–280; Vol. II, 1868–'69, pp. 211–242 and 321–367.

Gives synoptic tables of genera and species of both families; the Uroceridæ are treated in Vol. II, pp. 349–367.

E. T. CRESSON.—Catalogue of the Tenthredinidæ and Uroceridæ of North America. <Trans. Amer. Ent. Soc., Vol. VIII, 1880, pp. 53–68.

A synonymical reference list of the species; the Uroceridæ are treated on pp. 66, 67.

PETER CAMERON.—Monograph of the British Phytophagous Hymenoptera. 2 vols. London, 1882–'85.

Contains an arrangement of the subfamilies and genera of Tenthredinidæ, which has been reproduced by Cresson in his general work of classification.

CYNIPIDÆ.

R. OSTEN SACKEN.—On the Cynipidæ of the North American oaks and their galls. <Proc. Entom. Soc. Philadelphia, Vol. I, 1861–'63, pp. 47–72; additions and corrections, *l. c.*, pp. 241–259.

R. Osten Sacken.—Contributions to the Natural History of the Cynipidæ of the United States. <Proc. Entom. Soc. Phil., Vol. II, 1863–'64, pp. 33–49; Vol. IV, 1865, pp. 331–380; Trans. Amer. Ent. Soc., Vol. III, 1870–'71, pp. 54–64.

Continuation of the foregoing paper, both containing valuable contributions to the classification of genera and species.

B. D. Walsh.—On Dimorphism in the Hymenopterous genus Cynips: with an Appendix, containing hints for a new classification of Cynipidæ, including descriptions of several new species inhabiting the Oak galls of Illinois. <Proc. Entom. Soc. Phil., Vol. II, 1863–'64, pp. 443–500.

Gustav Mayr.—Die Genera der gallenbewohnenden Cynipiden. <20ter Jahresbericht der Communal-Oberrealschule im I. Bezirk. Wien, 1881.

W. H. Ashmead.—A bibliographical and synonymical catalogue of the North American Cynipidæ, with description of new species. <Trans. Amer. Entom. Soc., Vol. XII, 1885, pp. 291–304.

W. H. Ashmead.—Synopsis of the North American subfamilies and genera of Cynipidæ. <Trans. Amer. Ent. Soc., Vol. XIII, 1886, pp. 59–64.

W. H. Ashmead.—On the Cynipidous Galls of Florida, with descriptions of new species and Synopses of the described species of North America. <Trans. Am. Entom. Soc., Vol. XIV, 1887, No. 2, pp. 125–158.

ICHNEUMONIDÆ.

Edward Norton.—Catalogue of our species of Ophion, Anomalon, Paniscus, and Campoplex. <Proc. Entom. Soc. Phil., Vol. I. 1863, pp. 357–368.

Synoptic arrangement of the North American genera and species of the subfamily Ophioninæ.

E. T. Cresson.—Descriptions of North American Hymenoptera in the collection of the Entomological Society of Philadelphia. <Proc. Entom. Soc. of Phil., Vol. III, 1864, pp. 131–196.

Consists chiefly of a synopsis of the North American species of the genus Ichneumon.

E. T. Cresson.—A list of the Ichneumonidæ of North America, with descriptions of new species. <Trans. Amer. Entom. Soc., Vol. I, 1867, pp. 289–312; Vol. II, 1868–'69, pp. 89–114.

E. T. Cresson.—Descriptions of new species belonging to the subfamily Pimplariæ found in America, north of Mexico. <Trans. Amer. Entom. Soc., Vol. III, 1870–'71, pp. 143–172.

Tabulates the genera Pimpla, Polysphincta, Glypta, Arenetra, Lampronota, Xylonomus, Odontomerus, with a list of all species.

B. D. WALSH.—Descriptions of North American Hymenoptera [with notes by E. T. Cresson]. <Trans. St. Louis Acad. Sci., Vol. III, 1873, pp. 65–166.

E. T. CRESSON.—Notes on the species belonging to the subfamily Ichneumonides found in America, north of Mexico. <Trans. Amer. Entom. Soc., Vol. VI, 1877, pp. 129–212.

A synopsis of the genera and species of the subfamily Ichneumoninæ.

BRACONIDÆ.

E. T. CRESSON.—List of the North American species of the genus Alysiodes, Wesmael. <Trans. Amer. Entom. Soc., Vol. II, 1868–'69, pp. 377–382.

C. V. RILEY.—On North American Microgasters, with descriptions of new species. <Trans. St. Louis Ac. Sc., Vol. IV, No. 2, 1881.

T. A. MARSHALL.—Monograph of the British Braconidæ. Part I. <Trans. Entom. Soc. London, 1885, pp. 1–280, Pl. I–IV.

Marshall's classification is that reproduced by Cresson in his Synopsis.

CHALCIDIDÆ.

A. FOERSTER.—Synoptische Uebersicht der Familien und Gattungen in den beiden Gruppen der Chalcidiæ Spin. und Proctotrupii Latr. <Jahresber. d. höheren Bürgerschule in Aachen, 1856.

E. T. CRESSON.—Synopsis of the North American species belonging to the genera Leucospis, Smicra, and Chalcis. <Trans. Amer. Entom. Soc., Vol. IV, 1872–'73, pp. 29–60.

L. O. HOWARD.—Descriptions of North American Chalcididæ from the collections of the U. S. Department of Agriculture and of Dr. C. V. Riley, with biological notes [first paper], together with a list of the described North American species of the family. <U. S. Department of Agriculture, Bureau of Entomology. Bulletin No. 5. Washington, 1885.

L. O. HOWARD.—A generic synopsis of the Hymenopterous family Chalcididæ. <Entomol. Amer., Vol. I, 1885–'86, pp. 197–199 and 215–219; Vol. II, pp. 33–38.

PROCTOTRUPIDÆ.

L. O. HOWARD.—A generic synopsis of the Hymenopterous family Proctotrupidæ. <Trans. Amer. Entom. Soc., Vol. XIII, 1886, pp. 169–178.

CHRYSIDIDÆ.

EDWARD NORTON.—On the Chrysides of North America. <Trans. Amer. Entom. Soc., Vol. VII, 1878–'79, pp. 233–242.

Gives tables of genera and species.

S. FRANK AARON.—The North American Chrysididæ. <Trans. Amer. Entom. Soc., Vol. XII, 1885, pp. 209–248, Pl. VI–X.

FORMICIDÆ (including allied families).

G. L. MAYR.—Die Formiciden der Vereinigten Staaten von Nordamerika. <Verh. zool.-bot. Ges. in Wien, 1886.

MUTILLIDÆ.

CH. A. BLAKE.—Synopsis of the Mutillidæ of North America. <Trans. Amer. Entom. Soc., Vol. III, 1870–'71. pp. 217–265; Additions and Corrections, Vol. IV, 1872–'73, pp. 71–76.

CH. A. BLAKE.—Catalogue of the Mutillidæ of North America, with descriptions of new species. <Trans. Amer. Entom. Soc., Vol. VII, 1878–'79, pp. 243–254.

CH. A. BLAKE.—Monograph of the Mutillidæ of North America. <Trans. Amer. Entom. Soc., Vol. XIII, 1886, pp. 179–286.
This monograph supersedes the synopsis by the same author.

SCOLIIDÆ.

H. DE SAUSSURE & J. SICHEL.—Catalogus specierum generis Scolia, Genève, 1864.

SAPYGIDÆ.

E. T. CRESSON.—[Synoptic table of the North American species of Sapyga.] <Trans. Amer. Ent. Soc., Vol. VIII, 1880, pp. xx–xxi.

POMPILIDÆ.

E. T. CRESSON.—Notes on the Pompilidæ of North America, with descriptions of new species. <Trans. Amer. Ent. Soc., Vol. I, 1867, pp. 85–150.

SPHECIDÆ.

W. H. PATTON.—Some characters useful in the study of Sphecidæ. <Proc. Boston Soc. Nat. Hist., Vol. XX, 1880, pp. 378–385.
Critical notes on genera and species.

LARRIDÆ.

A. S. PACKARD, JR.—Revision of the Fossorial Hymenoptera of North America. I. Crabronidæ and Nyssonidæ. <Proc. Entom. Soc. Phil., Vol. VI, 1866, pp. 39–114 and 353–444.
This work includes revisions of the following families: Larridæ, Bembecidæ, Philanthidæ, Mimesidæ, Mellinidæ, Pemphredonidæ, and Crabronidæ.

W. H. PATTON.—List of North American Larridæ. <Proc. Boston Soc. Nat. Hist., Vol. XX, 1880, pp. 385–397.
Table of genera; list of and notes on species.

BEMBECIDÆ.

A. S. PACKARD, JR.—[See work cited under Larridæ.]

W. H. PATTON.—The American Bembecidæ: Tribe Stizini. <Bull. U. S. Geolog. and Geogr. Survey, Vol. V, No. 3. 1879, pp. 341–347.

NYSSONIDÆ.

A. S. PACKARD, Jr.—[See work cited under Larridæ.]

E. T. CRESSON.—Descriptions of the species belonging to the genus Nysson, inhabiting North America. <Trans. Amer. Entom. Soc., Vol. IX, 1881–'82, pp. 273–284.

PHILANTHIDÆ.

E. T. CRESSON.—Monograph of the Philanthidæ of North America. <Proc. Entom. Soc. Phil., Vol. V, 1865, pp. 85–132.

A. S. PACKARD, Jr.—[See work cited under Larridæ.]

W. H. PATTON.—Notes on the Philanthinæ. <Proc. Boston Soc. Nat. Hist., Vol. XX, 1880, pp. 397–405.

E. T. CRESSON.—[Table of the North American species of the genus Eucerceris.] <Trans. Amer. Entom. Soc., Vol. X, 1882–'83, pp. v–viii.

MIMESIDÆ.

A. S. PACKARD, Jr.—[See work cited under Larridæ.]

MELLINIDÆ.

A. S. PACKARD, Jr.—[See work cited under Larridæ.]

PEMPHREDONIDÆ.

A. S. PACKARD, Jr.—[See work cited under Larridæ.]

CRABRONIDÆ.

A. S. PACKARD, Jr.—[See work cited under Larridæ.]

MASARIDÆ.

HENRI DE SAUSSURE.—Synopsis of American Wasps. Solitary Wasps. <Smithsonian Miscellaneous Collections, 254, Washington, 1875.
This work monographs the American Masaridæ and Eumenidæ

EUMENIDÆ.

HENRI DE SAUSSURE.—[Work just cited.]

VESPIDÆ.

HENRI DE SAUSSURE.—Études sur la famille des Vespides. Monographie des guêpes sociales ou de la tribu des Vespiens. Paris, 1853.

HENRI DE SAUSSURE.—Bemerkungen über die Gattung Vespa, besonders über die amerikanischen Arten. <Stettiner Entom. Zeit., Vol. XVIII, 1857, pp. 114–117.

HENRI DE SAUSSURE.—Note sur les Polistes américains. <Ann. Soc. Entom. France, 1857, pp. 309–314.

ANTHOPHILA (*Andrenidæ* and *Apidæ*).

E. T. CRESSON.—A list of the North American species of the genus Anthophora, with descriptions of new species. <Trans. Amer. Entomol. Soc., Vol. II, 1868–'69, pp. 289–293.

E. T. CRESSON.—Catalogue of North American Apidæ. <Trans. Amer. Entom. Soc., Vol. VII, 1878–'79, pp. 215–232.

A synonymical reference list of the species.

W. H. PATTON.—Generic arrangement of the Bees allied to Melissodes and Anthophora. <Bulletin U. S. Geol. and Geogr. Survey, Vol. V, No. 3, 1879, pp. 471–479.

COLEOPTERA.

I.—CATALOGUES AND CHECK-LISTS.

F. E. MELSHEIMER.—Catalogue of the described Coleoptera of the United States. Revised by S. S. Haldeman and J. L. Le Conte. Washington, Smithsonian Institution, 1853.

Now antiquated, but still the only reference catalogue of North American Coleoptera.

JOHN L. LE CONTE.—List of the Coleoptera of North America. Prepared for the Smithsonian Institution. Part I. Washington, Smithsonian Instution, 1863–'66.

A synonymical check-list; incomplete, the second part having never been published.

G. R. CROTCH.—Check-list of the Coleoptera of America, north of Mexico. Salem, Mass., Naturalists' Agency, 1873.

GEMMINGER AND HAROLD.—Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus. 12 vols. Munich, 1868–'76.

A synonymical reference catalogue of the Coleoptera of the whole world.

E. P. AUSTIN.—Supplement to the Check-list of the Coleoptera of America, north of Mexico. Boston, S. E. Cassino, 1880.

SAMUEL HENSHAW.—List of the Coleoptera of America, north of Mexico. Philadelphia, American Entomological Society, 1885.

This supersedes all previous lists.

SAMUEL HENSHAW.—First Supplement to the List of Coleoptera of America, north of Mexico. <Entomologica Americana, Vol. II, 1887, pp. 213–220.

Also issued as separate pamphlet by the Brooklyn Entomological Society.

II.—GENERAL WORKS ON CLASSIFICATION.

J. L. LE CONTE.—Classification of the Coleoptera of North America. Washington, Smithsonian Institution. Part I, 1861; Part II, 1873.

Only completed as far as the Cerambycidæ; the rest has never been published.

WILLIAM LE BARON.—Outlines of Entomology, published in connection with the author's Annual Reports upon injurious insects. Part first. Including the Order of Coleoptera. Fourth Annual Report on the Noxious and Beneficial Insects of the State of Illinois. Sep. Edit. Springfield, 1874.

J. T. LACORDAIRE.—Histoire naturelle des Insectes. Genera des Coléoptères, ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes. [Completed by J. Chapuis.] Paris, France, 1854–'76. 12 vols. and 1 vol. plates.

JOHN L. LE CONTE AND GEORGE H. HORN.—Classification of the Coleoptera of North America. Prepared for the Smithsonian Institution. Washington, Smithsonian Institution, 1883.

This is the most recent and the only complete classification of North American Coleoptera.

JOHN L. LE CONTE.—New Species of North American Coleoptera. Smithsonian Miscell. Coll., Nos. 167 and 264 (2 parts).

Contains, besides descriptions of numerous isolated species, synoptic tables of many genera.

III.—MONOGRAPHS AND SYNOPSES.

SAMUEL HENSHAW.—References for specific identification. <Appendix II of Le Conte and Horn's "Classification," 1883, pp. 535–552.

A "list of bibliographical references to memoirs, in which more or less complete synopses of the families, genera, and species of the Coleoptera of the United States have been published."

Since the following list includes only synopses on families, subfamilies, or tribes, Mr. Henshaw's paper must be consulted in regard to single genera.

CICINDELIDÆ.

F. G. SCHAUPP.—Synoptic tables of Coleoptera, Cicindelidæ. <Bull. Brooklyn Entomological Society, Vol. VI, November, 1883, and subsequent numbers. Also issued as separate pamphlet by the Brookl. Ent. Soc.

CARABIDÆ.

J. L. LE CONTE.—Notes on the classification of the Carabidæ of the United States. <Trans. Amer. Philos. Soc., Ser. 2, 1853, Vol. X, pp. 363–403.

GEORGE H. HORN.—On the genera of Carabidæ, with special reference to the fauna of Boreal America. <Trans. Amer. Entom. Soc., Vol. IX, 1882, pp. 91–196, Pl. III–X.

Of most of our genera of this extensive family we have monographs or synopses by Drs. Le Conte, Horn, or by Mr. Crotch, and the tables for the determination of the species are reproduced and augmented by some original tables in the Bulletin of the Brookl. Ent. Soc., from Vol. I to Vol. VI. Since that time only one important paper has been published, viz:

GEORGE H. HORN.—Synopsis of the species of the tribe Lebiini. <Trans. Amer. Ent. Soc., Vol. X, 1883, pp. 126–163.

HALIPLIDÆ.

G. R. CROTCH.—Revision of the Dytiscidæ of the United States. <Trans. Amer. Entom. Soc., Vol. IV, 1872–'73; Haliplides, pp. 383–385.

DYTISCIDÆ.

G. R. CROTCH.—[Work just cited; Dytiscides, pp. 385–424.]

DAVID SHARP.—On aquatic carnivorous Coleoptera or Dytiscidæ. <Trans. Royal Dublin Soc., 1882, Ser. 2, Vol. II, pp. 179–1003, plates.

A monograph of the Dytiscidæ of the whole world.

GYRINIDÆ.

JOHN L. LE CONTE.—The Gyrinidæ of America, north of Mexico. <Proc. Ac. Nat. Sc. Phil., 1868, pp. 365–373.

M. REGIMBART.—Essai monographique de la famille des Gyrinides. <Ann. Soc. Ent. de France, 1882–'83, with eight plates.

Treats of the Gyrinidæ of the whole globe.

HYDROPHILIDÆ.

JOHN L. LE CONTE.—Synopsis of the Hydrophilidæ of the United States. <Proc. Acad. Sc. Phil., Vol. VII, 1855, pp. 356–375.

GEORGE H. HORN.—Revision of the genera and species of the tribe drobiini. <Proc. Amer. Philos. Soc., 1873, pp. 118–137.

SILPHIDÆ.

JOHN L. LE CONTE.—Synopsis of the Silphales of America, north of Mexico. <Proc. Ac. Nat. Sc. Phila., Vol. VI, 1853, pp. 274–287.

GEORGE H. HORN.—Synopsis of the Silphidæ of the United States, with reference to the genera of other countries. <Trans. Amer. Entom. Soc., Vol. VIII, 1880, pp. 219–322, Pl. V–VII.

SCYDMÆNIDÆ.

JOHN L. LE CONTE.—Synopsis of the Scydmænidæ of the United States. <Proc. Ac. Nat. Sc. Phila., Vol. VI, 1854, pp. 149–157.

PSELAPHIDÆ.

JOHN L. LE CONTE.—On the Pselaphidæ of the United States. <Boston Journ. Nat. Hist., Vol. VI, 1850, pp. 64–110.

EMIL BRENDEL.—Synopsis of the genera and species of the family Pselaphidæ. <Proc. Ent. Soc. Phil., Vol. VI, 1866–7, pp. 31–38.

THOS. L. CASEY.—Euplectini. <Contributions to the descriptive and systematic Coleopterology of North America. Part II, pp. 93–122.

STAPHYLINIDÆ.

GEORGE H. HORN.—Synopsis of the genera and species of the Staphylinid tribe Tachyporini of the United States. <Trans. Amer. Ent. Soc., Vol. VI, 1877, pp. 81–128, 1 pl.

JOHN L. LE CONTE.—On certain genera of Staphylinidæ, Oxytelini, Piestidæ, and Micropeplidæ, as represented in the fauna of the United States. <Trans. Amer. Ent. Soc., Vol. VI, 1877, pp. 213–252.

A. FAUVEL.—Staphylinides de l'Amérique du Nord. Partie I. <Notices entomologiques, No. 7, 1878.

Treats the Micropeplidæ, Piestini, Phlœocharini, Protinini, Homalini, and Oxytelini (incomplete).

GEORGE H. HORN.—Synopsis of the Quediini of the United States. <Trans. Amer. Ent. Soc., Vol. VII, 1879, pp. 149–167.

GEORGE H. HORN.—Synopsis of the species of Staphylinus and the more closely allied genera inhabitating the United States. <Trans. Amer. Ent. Soc., Vol. VII, 1879, pp. 185–200.

JOHN L. LE CONTE.—Short studies of North American Coleoptera. <Trans. Amer. Ent. Soc., Vol. VIII, 1880.

Tabulates the following genera: Leptacinus (p. 168); Leptalinus (p. 171), Xantholinus (p. 171), Lathrobium (p. 174), Liparocephalus (p. 177), Stilicus (p. 178), Sunius (p. 179).

THOS. L. CASEY.—Revision of the Stenini of America, north of Mexico.

Separate publication; without date.

TRICHOPTERYGIDÆ.

A. MATTHEWS.—Trichopterygia illustrata et descripta. London, 1871.

A monograph of the Trichopterygidæ of the whole world.

A. MATTHEWS.—Synopsis of North American Trichopterygidæ. <Trans. Amer. Ent. Soc., Vol. XI, 1884, pp. 113–156.

SCAPHIDIIDÆ.

JOHN L. LE CONTE.—Synopsis of the Scaphidiidæ of the United States. <Proc. Acad. Nat. Sc. Phil., 1860, pp. 321–324.

PHALACRIDÆ.

JOHN L. LE CONTE.—Synopsis of the Phalacridæ of the United States. <Proc. Acad. Nat. Sc. Phil., Vol. VIII, 1856, pp. 15–17.

CORYLOPHIDÆ.

JOHN L. LE CONTE.—Remarks upon the Coccinellidæ of the United States. <Proc. Ac. Nat. Sc. Phil., Vol. VI, 1852, pp. 129–145.
The Corylophidæ are treated on pp. 141–145.

COCCINELLIDÆ.

E. MULSANT.—Spécies des Coléoptères trimères sécuripalpes. Lyon, 1851 2 vols.; 1 vol. Supplement. Paris, 1853.
A monograph of the Coccinellidæ of the whole world.

JOHN L. LE CONTE.—Remarks upon the Coccinellidæ of the United States. <Proc. Ac. Nat. Sc. Phil., Vol. VI, 1852, pp. 129–141.

G. R. CROTCH.—Revision of the Coccinellidæ of the United States. <Trans. Amer. Ent. Soc., Vol. IV, 1873, pp. 363–382.

G. R. CROTCH.—Revision of the Coccinellidæ. Ed. by R. Rippon. London, 1874.
Treats also of the Coccinellidæ of the whole world.

EROTYLIDÆ.

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A complete revision of the tribe Acanthoderini, p. 115; tables of Æthecerus, p. 133; Cyllene, p. 134.

CHAS. W. LENG.—Synopsis of Coleoptera [Cerambycidæ]. <Bull. Brookl. Ent. Soc., Vol. VII, 1884, No. 1, p. 7, and in subsequent numbers; continued in Entomologica Americana, Vols. I–III, and not yet completed.

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GEO. H. HORN.—Revision of the Bruchidæ of the United States. <Trans. Amer. Ent. Soc., Vol. IV, 1873, pp. 311–342.

TENEBRIONIDÆ.

GEO. H. HORN.—Revision of the Tenebrionidæ of America, north of Mexico. <Trans. Amer. Philos. Soc., n. ser., Vol. XIV, 1870, pp. 253–404, 2 plates.

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This family has never been monographed, and we have only tables of the genera Hymenorus and Mycetochares, by Le Conte, in "New Species of North American Coleoptera" (Smithson. Misc. Contrib., etc., p. 135); and Trans. Amer. Philos. Soc., XVII, 1878, p. 616.

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The few species of the single genus constituting this family have been tabulated by Dr. Horn in Trans. Amer. Ent. Soc., Vol. II, 1868, pp. 132, 133.

LAGRIIDÆ.

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Contains on pp. 28–32 a synopsis of the family.

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JAMES THOMSON.—Monographie de la famille des Monommides. <Ann. Soc. Ent. France, 1860, pp. 5–38.

A monograph of the family of the whole world. The few (four) species hitherto found in North America are tabulated by Dr. Horn in Trans. Amer. Ent. Soc., Vol. IV, 1872, p. 150.

MELANDRYIDÆ.

No complete synopsis has hitherto been published, and excepting a table of Hallomenus, by Dr. Le Conte (Proc. Amer. Philos. Soc., Vol. XVII, 1878, p. 619), we can only record the following paper .

GEORGE H. HORN.—Notes on the Mycteridæ and other Heteromera. <Trans. Amer. Ent. Soc., Vol. VII, 1879, pp. 336–339.

Tabulates Mycterus and Lacconotus.

GEO. H. HORN.—Miscellaneous Coleopterous studies. <Trans. Amer. Ent. Soc., Vol. XV., 1888.

Contains on pp. 32–44 a revised table of the tribes of Melandryidæ and tables of the genera Eustrophus, Holostrophus, Orchesia, and Hypulus.

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Excepting the table of Cononotus, by Dr. Horn (Trans. Am. Ent. Soc., Vol. II, 1868, p. 136), and a table of Pytho, by the same author (l. c. Vol. XV, 1888, p. 45), we have no synoptic papers on this family.

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The few species composing this family are tabulated by Dr. Le Conte in Mr. E. P. Austin's Catalogue of the Coleoptera of Mount Washington, N. H. <Proc. Boston Soc. Nat. Hist., Vol. XVI, 1874, pp. 265–276.

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JOHN L. LE CONTE.—Synopsis of the Mordellidæ of the United States. <Proc. Ac. Nat. Sc. Phil., 1862, pp. 43–51.

JOHN B. SMITH.—A synopsis of the Mordellidæ of the United States. <Trans. Amer. Ent. Soc., Vol. X, 1882, pp. 73–100, Plates I–III.

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JOHN L. LE CONTE.—Note on the species of Myodites Latr., inhabiting the United States. <Proc. Ac. Nat. Sc. Phil., 1865, pp. 96–98. See also "Short Studies of North American Coleoptera." <Trans. Amer. Ent. Soc., Vol. VIII, 1880, p. 210.

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F. DE LA FERTÉ-SÉNECTÈRE.—Monographie des Anthicus et genres voisins, Coléoptères hétéromères de la tribus des Trachélides. Paris, 1848.

JOHN L. LE CONTE.—Synopsis of the Anthicites of the United States. <Proc. Ac. Nat. Sc. Phil., Vol. VI, 1852, pp. 91–104.

JOHN L. LE CONTE.—Synopsis of the Pyrochroidæ of the United States. <Proc. Ac. Nat. Sc. Phil., Vol. VII, 1855, pp. 270–275.

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GEORGE H. HORN.—Synopsis of the species of Corphyra Say, of the United States. <Trans. Amer. Ent. Soc., Vol. III, 1871, pp. 278–283.

For subsequent tables by Dr. Horn of the same genus see Trans. Amer. Ent. Soc., Vol. V, 1874, p. 40, and, *l. c.*, Vol. X, 1883, pp. 305–310.

PYROCHROIDÆ.

JOHN L. LE CONTE.—Synopsis of the Pyrochroidæ of the United States. <Proc. Ac. Nat. Sc. Phil., Vol. VII, 1855, pp. 270–275.

GEORGE H. HORN.—Miscellaneous Coleopterous studies. <Trans. Amer. Ent. Soc., Vol. XV, 1888.

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JOHN L. LE CONTE.—Synopsis of the Meloides of the United States. <Proc. Ac. Nat. Sc. Phil., Vol. VI, 1853, pp. 328–350.

GEORGE H. HORN.—Revision of the species of several genera of Meloidæ of the United States. <Proc. Am. Philos. Soc., Vol. XIII, 1873, pp. 88–117.

Gives tables of Macrobasis, p. 88; Epicauta, p. 95; Cantharis, p. 103; Pomphopœa, p. 115.

RHYNCHOPHORA.

C. J. SCHŒNHERR.—Genera et species Curculionidum cum synonymia hujus familiæ... 8 vols., Paris, 1833–'34.

An additional volume, Mantissa secunda familiæ Curculionidum, appeared in 1847.

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C. ZIMMERMANN.—Synopsis of the Scolytidæ of America, north of Mexico. With Notes and an Appendix by J. L. Le Conte. <Trans. Amer. Ent. Soc., Vol. II, 1868, pp. 141–178.

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A. R. Grote and C. T. Robinson.—A synonymical catalogue of North American Sphingidæ, with notes and descriptions. <Proc. Entom. Soc. Phil., Vol. V, 1865, pp. 149–193, 3 plates.

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A. R. Grote and C. T. Robinson.—List of the Lepidoptera of North America. Philadelphia, Amer. Ent. Soc., 1868.

Contains the Sphingidæ, Ægeriidæ, Thyridæ, Zygænidæ, and Bombycidæ.

A. R. Grote.—List of the Noctuidæ of North America. <Bull. Buffalo Soc. Nat. Hist., Vol. II, 1874, pp. 1–77.

The only synonymical and bibliographical catalogue of the North American Noctuidæ.

S. H. Scudder.—Synonymic list of the Butterflies of North America, north of Mexico. Part I. Nymphales. <Bull. Buff. Soc. Nat. Hist., Vol. II, 1875, pp. 233–269; Part II. Rurales. <*L. c.*, Vol. III, 1876, pp. 98–129.

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W. F. Kirby.—A synonymic catalogue of diurnal Lepidoptera. London, 1871; Supplement, London, 1877.

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B. Gerhard.—Systematisches Verzeichniss der Macrolepidopteren von Nord-Amerika. Leipzig, 1878.

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V. T. CHAMBERS.—Index to the described Tineina of the United States and Canada. <Bull. U. S. Geol. Survey Terr., Vol. IV, 1878, pp. 125–167.

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BROOKLYN ENTOMOLOGICAL SOCIETY.—Check-list of the Macrolepidoptera of America, north of Mexico. Brooklyn, N. Y., 1882.

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C. H. FERNALD.—A synonymical catalogue of the described Tortricidæ of North America, north of Mexico. <Trans. Amer. Ent. Soc., Vol. X, 1882, pp. 1–64; also separate.

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This is the most recent reference and synonymic catalogue, superseding a similar catalogue by the same author published in 1877.

W. H. EDWARDS.—List of species of the Diurnal Lepidoptera of America north of Mexico. Boston, Houghton, Mifflin & Co., 1884, 4to.

A mere list of the species, following in all respects the catalogue just cited, and printed to accompany Vol. II of the "Butterflies of North America."

II.—GENERAL WORKS ON CLASSIFICATION.

G. A. W. HERRICH-SCHAEFFER.—Sammlung neuer oder wenig bekannter aussereuropäischer Schmetterlinge. Vol. I. Regensburg, 1850–'58; Vol. II, Pt. 1, 1869.

Contains a classification of the Lepidoptera, which forms the basis of our present arrangement.

JOHN G. MORRIS.—Synopsis of the described Lepidoptera of North America. Part I. Diurnal and Crepuscular Lepidoptera. Washington, Smithsonian Institution, 1862.

Compiled descriptions of the North American Lepidoptera, from the Rhopalocera to the Bombycidæ.

H. STRECKER.—Lepidoptera, Rhopaloceres et Heteroceres, indigenous and exotic; with descriptions and colored illustrations. Reading, Pa., 1872–'77.

Fifteen parts of this work have been published containing figures and descriptions of many North American species.

JOHN B. SMITH.—An introduction to a classification of the North American Lepidoptera. <Bull. Brookl. Ent. Soc., Vol. VII, 1884, pp. 70–74 and 81–83.

A synopsis of the families of Lepidoptera, based on Herrich-Schaeffer's classification.

III.—MONOGRAPHS AND SYNOPSES.

Rhopalocera.

J. A. Boisduval.—Histoire naturelle des Insectes. Spécies général des Lépidoptères. Suites à Buffon. Paris, 1836.

Contains full descriptions of the known species, but extends only from Papilio to the end of Terias.

E. Doubleday and W. C. Hewitson.—The genera of diurnal Lepidoptera, comprising their generic characters, a notice of their transformations, and a catalogue of the species of each genus; illustrated, with 86 colored plates from drawings by W. C. Hewitson. 2 vols., London, 1846–'52.

This work was completed by Westwood after the death of Doubleday.

S. H. Scudder.—Butterflies: Their structures, changes, and life-histories, with special reference to American forms. Being an application of the "Doctrine of descent" to the study of Butterflies, with an appendix of practical instructions. New York, Henry Holt & Co., 1881.

Carl Ploetz.—Die Hesperiinen-Gatting Hesperia *Aut.* und ihre Arten. <Stettin. entom. Zeit., 1882, pp. 314–344, continued in subsequent volumes.

John B. Smith.—Synopsis of the genera of the North American Rhopalocera. <Bull. Brookl. Ent. Soc., Vol. VI, 1883, pp. 37–45.

A tabular synopsis embracing all North American genera.

C. H. Fernald.—The Butterflies of Maine. Designed for the use of the students in the Maine State College, and the farmers of the State. Orono, Me., 1884.

G. H. French.—The Butterflies of the Eastern United States. For the use of classes in Zoology and private students. Philadelphia, Lippincott & Co., 1886.

Gives synopses of the genera and species, and descriptions of the species.

Brooklyn Entomological Society.—Synopses of Butterflies. <Bull. Brooklyn Entom. Soc., Vol. I and subsequent volumes; continued in Entomologica Americana, Vol. I.

Synopses of the North American species of Rhopalocera, the later articles giving tables of species and bibliography. Not yet completed.

Samuel H. Scudder.—Comparative tables for the families of Butterflies. <Canad. Entom. Vol. XIX, 1887, No. 11, pp. 201–206.

W. H. Edwards.—Butterflies of North America. Boston, Houghton, Mifflin & Co.

Two volumes are completed and the third is in course of publication.

Heterocera.

SPHINGIDÆ.

T. W. HARRIS.—Descriptive Catalogue of the North American insects belonging to the Linnæan genus Sphinx, in the cabinet of Thaddeus William Harris, M. D., librarian of Harvard University. <Amer. Journ. Sc. and Arts, Vol. XXXVI, 1839, pp. 282–320.

Includes not only the Sphingidæ as at present limited, but also the Zygænidæ of Grote's new list.

B. CLEMENS.—Synopsis of the North American Sphingides. <Journ. Ac. Nat. Sc. Phil., Vol. IV, Pt. 2, 1859, pp. 97–190.

A monograph of the family as at present limited.

J. A. BOISDUVAL.—Sphingides, Sesiides, Castniides. Paris, Roret 1874.

Forms part of the Suites à Buffon, and is Vol. I of the Spécies général des Lépidoptères hétérocères.

A. G. BUTLER.—Revision of the Heterocerous Lepidoptera of the family Sphingidæ. <Trans. Zool. Soc. London, Vol. IX. 1877, pp. 511–644, Pl. XC–XCIV.

A descriptive catalogue.

JOHN B. SMITH.—An introduction to a classification of the North American Lepidoptera. Sphingidæ. <Entom. Amer., Vol. I. 1885, pp. 81–87.

Contains a synopsis of the genera, with brief remarks on each.

C. H. FERNALD.—The Sphingidæ of New England. Orono, Me., 1886.

Gives the life-history, so far as known, of all species recorded from New England.

JOHN B. SMITH.—A monograph of the Sphingidæ of North America, north of Mexico. <Trans. Amer. Ent. Soc., Vol. XV, 1888, Part II, 12 plates.

[This is not published but is included here because now in the printer's hands.—C. V. R.]

SESIIDÆ.

See papers by Harris and Boisduval above cited, who treat the Sesiidæ as a part of the Sphingidæ, both works being antiquated so far as they relate to the Sesiidæ.

JOHN B. SMITH.—An introduction to a classification of the North American Lepidoptera. <Entom. Amer., Vol. IX., 1888, pp. 9–13.

THYRIDÆ.

This family has also been treated by Harris and Boisduval as a part of the Sphingidæ.

ZYGÆNIDÆ.

A. S. PACKARD, Jr.—Notes on the family Zygænidæ. <Proc. Essex Institute, Vol. IV, 1864, pp. 7–47, Pl. I, II.

Description of a number of new genera and species, with notes on others.

A. R. GROTE.—Catalogue of the Zygænidæ of North America. <Bull. Buffalo Soc. Nat. Sc., Vol. I, 1873, pp. 29–36.

R. H. STRETCH.—Illustrations of the Zygænidæ and Bombycidæ of North America. San Francisco, Cal., Author, 1874.

JOHN B. SMITH.—Notes on the systematic position of some North American Lepidoptera. <Trans. Amer. Entom. Soc., Vol. XII, 1885, pp. 77–84.

Discusses the genera classed as Zygænidæ in Grote's list, and separates them into carefully defined groups.

BOMBYCIDÆ.

A. S. PACKARD, Jr.—Synopsis of the Bombycidæ of the United States. <Proc. Entom. Soc. Phil., Vol. III, 1864, pp. 97–130 and 331–396.

A. R. GROTE.—On the North American Platypteryginæ. <Trans. Amer. Ent. Soc., Vol. II, 1868, pp. 65–67.

A. R. GROTE.—List of the North American Platypterices, Attaci, Hemileucini, Ceratocampadæ, Lachneides, Teredines, and Hepiali, with notes. <Proc. Amer. Philos. Soc., Vol. XIV, 1874, pp. 256–264.

R. H. STRETCH.—Illustrations of the Zygænidæ and Bombycidæ of North America. San Francisco, Cal., Author, 1874.

The Lithosiidæ and Arctiidæ are principally treated.

A. G. BUTLER.—On the Lepidoptera of the family Lithosiidæ, in the collection of the British Museum. <Trans. Entom. Soc. London, 1877, pp. 325–377, Pl. VIII.

A. R. GROTE.—Table of species of Euchætes. <Canad. Entom., Vol. XIV, 1882, pp. 196, 197.

J. S. BAILEY.—Some of the North American Cossidæ, with facts in the life history of *Cossus centerensis* Lintner. <Bull. No. 3, 1883, U. S. Department of Agricult., Divis. of Entomol., pp. 49–55, Pl. I, II.

H. H. LYMAN.—The North American Callimorphas. <Canad. Ent. Vol. XIX, 1887, pp. 181–191, plate.

JOHN B. SMITH.—The North American species of Callimorpha, Latr. <Proc. U. S. Nat. Mus., 1887, pp. 342–353, Pl. XIII, XIV.

NOCTUIDÆ.

A. GUENÉE.—Noctuelites. Spécies général des Lépidoptères. Suites à Buffon. Paris, Roret, 1852, Vols. 5–7.

Vol. VIII of the same work treats the Deltoides et Pyralites, the former group now being attached to the Noctuidæ.

A. R. GROTE.—A Revision of the species of Cymatophorina found in the United States and British America, with descriptions of new species. <Proc. Entom. Soc. Phil., Vol. II, 1863, pp. 54–59.

A. R. GROTE.—The species of Erotyla, Spragueia, Fruva, Xanthoptera, Exyra, and Prothymia. <Canad. Ent., Vol. XI, 1879, pp. 231–238.

A. R. GROTE.—On the described North American species of Thalpochares. <Canad. Entom., Vol. XII, 1880, pp. 57–59.

A. R. GROTE.—List of North American Bombyciæ of Hübner. <Canad. Entom., Vol. XIII, 1881, pp. 151–153.

A. R. GROTE.—Preliminary list of the North American species of Agrotis, with descriptions. <Bull. U. S. Geol. Survey, Vol. VI, 1881, pp. 149–164.

A. R. GROTE.—North American Moths, with a preliminary catalogue of the species of Hadena and Polia. <Bull. U. S. Geol. and Geogr. Survey, Vol. VI, 1881, pp. 257–277.

A. R. GROTE.—The North American species of Mamestra. <Canad. Entom., Vol. XIII, 1881, pp. 126–130.

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A. R. GROTE.—The North American species of Eustrotia. <Papilio, Vol. I, 1881, pp. 10–11.

JOHN B. SMITH.—A synopsis of the North American genera of the Noctuidæ. <Bull. Brooklyn Entom. Soc., Vol. IV, 1882, pp. 48–52, and Vol. V, from May till November, 1882.

Contains a tabular synopsis of the genera, with critical notes on many of them.

JOHN B. SMITH.—Remarks on the generic characters of the Noctuidæ. <Canad. Ent., Vol. XIV, 1882, pp. 65–72.

GEO. H. FRENCH.—Synopsis of the Noctuidæ of Illinois. Greenville, Ills., 1882. <Curator's Report in the eighth Ann. Rep. of the Principal to the Board of Trustees of the South Ill. Normal University.

A. R. GROTE.—Notes on the genus Tripudia, and on the species of Spragueia. <Canad. Ent., Vol. XIV, 1882, pp. 32–33.

A. R. GROTE.—List of the species of Tripudia and Gyros. <Canad. Entom., Vol. XIV, 1882, pp. 195–196.

A. R. GROTE.—Introduction to a study of the North American Noctuidæ. <Proc. Amer. Philos. Soc., Vol. XXI, 1883, pp. 134–176.

Gives a brief review of structural characters of the family and a list of the species described by Grote, with descriptions of several new genera and species.

A. R. GROTE.—List of Apatelæ belonging to the groups Acronicta and Triæna. <Papilio, Vol. III, 1883, pp. 67–70.

A. R. GROTE.—Conclusion of List of American Apatelas. <Papilio, Vol. III, 1883, pp. 111–117.

A. R. GROTE.—On the North American Calpinæ to Heliothinæ. <Canad. Ent., Vol. XV, 1883, pp. 72–77 and 102–110.

JOHN B. SMITH.—Synopsis of the North American Heliothinæ. <Trans. Amer. Ent. Soc., Vol. X, 1883, pp. 205–256, pl. VII, VIII.

A. R. GROTE.—Remarks upon the North American Heliothinæ and their recent literature. <Trans. Amer. Ent. Soc., Vol. X, 1883, pp. 257–268.

G. D. HULST.—The genus Catocala. <Bull. Brookl. Ent. Soc., Vol. VII, 1884, pp. 13–56, Pl. I.

A complete monograph of the genus.

GEOMETRIDÆ.

A. S. PACKARD, Jr.—A monograph of the Geometrid moths or Phalænidæ of the United States. <U. S. Geological Survey of the Terr. Department of the Interior. F. V. Hayden, U. S. Geologist in charge. Report, Vol. X, Washington, D. C., 1876, pp. 607, 13 plates.

This supersedes all prior works and gives a complete index to the prior literature as well as a description of every species.

PYRALIDÆ.

A. GUENÉE.—Deltoides et Pyralites. Spécies général des Lépidoptères. Vol. VIII, Suites à Buffon. Paris, Roret, 1854.

A. R. GROTE.—Preliminary studies on the North American Pyralidæ. <Bull. U. S. Geol. and Geogr. Surv. Terr., Vol. IV, 1878, pp. 669–705.

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A. R. GROTE.—Preliminary list of North American species of Crambus. <Canad. Ent., Vol. XII, 1880, pp. 77–80.

TORTRICIDÆ.

COLEMAN T. ROBINSON.—Notes on American Tortricidæ. <Trans. Amer. Ent. Soc., Vol. II, 1869, pp. 261–288, Pls. I and IV–VIII.

THOMAS, LORD WALSINGHAM.—North American Tortricidæ. British Museum. Illustrations of typical specimens of Lepidoptera heterocera in the collection of the British Museum. 1 vol., folio, 1879, pp. 12+84, Pl. XVII.

C. H. FERNALD.—A synonymical catalogue of the described Tortricidæ of North America, north of Mexico. <Trans. Amer. Entom. Soc. Vol. X, 1882, pp. 1–64.

TINEIDÆ.

B. CLEMENS.—The Tineina of North America, by the late Dr. Brackenridge Clemens. Being a collected edition of his writings on that group of insects. With notes by the editor, H. T. Stainton. London, Van Voorst, 1872, pp. 15+282.

V. T. CHAMBERS.—Index to the described Tineina of the United States and Canada. <Bull. U. S. Geol. and Geogr. Surv. Terr., Vol. IV, 1878, pp. 125–167.

THOMAS, LORD WALSINGHAM.—North American Coleophoræ. <Trans. Ent. Soc. London, 1882, pp. 429–442, Pl. XVII.

THOMAS, LORD WALSINGHAM.—A revision of the genera Acrolophus. Poey and Anaphora. Clem. <Trans. Entom. Soc. London, 1887, pp. 137–173, Pls. VII, VIII.

DIPTERA.

I.—CATALOGUES.

C. R. Osten Sacken.—Catalogue of the described Diptera of North America. Washington, Smithsonian Institution, 1858. <Smithsonian Miscell. Collections, Vol. III.

C. R. Osten Sacken.—Catalogue of the described Diptera of North America. [Second edition.] Washington, Smithsonian Institution, 1878. <Smithsonian Miscell. Collections, 270.

This completely supersedes the first edition and contains by far more than a synonymical reference list of the North American Diptera.

II.—GENERAL WORKS ON CLASSIFICATION.

F. W. Meigen.—Systematische Beschreibung der bekannten europäischen zweiflügeligen Insecten. 7 vols. Aachen und Hamm, 1818–'38.

Although only dealing with the European fauna and now antiquated and superseded in many parts, this work is still the foundation of the modern classification of Diptera.

C. R. W. Wiedemann.—Aussereuropäische zweiflügelige Insecten. 2 vols. Hamm, 1828–'30.

A continuation of Meigen's work, and containing descriptions of many genera and species belonging to the North American fauna.

J. Macquart.—Diptères exotiques nouveaux ou peu connus. 2 vols. in 5 parts and 5 supplements. Paris, 1838–'55.

Contains descriptions of many North American genera and species.

J. R. Schiner.—Fauna Austriaca. Die Fliegen (Diptera). Nach der analytischen Methode bearbeitet, mit der Characteristik sämmtlicher europäischer Gattungen, der Beschreibung aller in Deutschland vorkommenden Arten und der Aufzählung aller bisher beschriebenen europäischen Arten. 2 vols., Wien, 1862–'64.

Although dealing with the European fauna, this work is very useful on account of the analytical tables of families and genera.

H. Loew and C. R. Osten-Sacken.—Monographs of the Diptera of North America. (Smithsonian Miscellaneous Collections.) 4 parts. Washington, Smithsonian Institution, 1862–'72.

The several monographs will be found enumerated under the respective families.

H. Loew.—Diptera Americæ septentrionalis indigena. 2 parts. Berlin, 1861–'72. (Originally published in 10 centuriæ in the Berliner Entomol. Zeitschrift.)

Descriptions of 1,000 North American Diptera, but without synoptic arrangement.

C. R. Osten-Sacken.—Western Diptera: Descriptions of new genera and species of Diptera from the region west of the Mississippi and especially from California. <Bull. U. S. Geol. and Geogr. Survey of the Territories, Vol. III, 1877, pp. 189–354.

F. Brauer.—Die Zweiflügler des Kaiserlichen Museums zu Wien. I–III. Wien, 1880–'83.

Important contributions to the classification of the Diptera.

III.—MONOGRAPHS AND SYNOPSES.

CECIDOMYIDÆ.

J. Winnertz.—Beitrag zu einer Monographie der Gallmücken. <Linnæa Entomologica, Vol. VIII, 1853, 4 plates.

R. Osten Sacken.—On the North American Cecidomyidæ. <Monographs of the Diptera of North America, by H. Loew and Osten Sacken, Part I, No. 5, 1862, pp. 173–205.

B. D. Walsh.—On the insects, Coleopterous, Hymenopterous, and Dipterous, inhabiting the galls of certain species of Willow. Diptera. <Proc. Ent. Soc. Phil., Vol. III, 1864, pp. 543–644; Vol. VI, 1866, pp. 223–229.

J. von Bergenstamm and Paul Loew.—Synopsis Cecidomyidarum. <Verh. k. k. zool.-bot. Ges. in Wien, Vol. XXVI, 1876, pp. 1–104.

A synopsis of all the literature of the family.

MYCETOPHILIDÆ.

J. Winnertz.—Beitrag zu einer Monographie der Pilzmücken. <Verh. k. k. zool.-bot. Ges. in Wien, 1863, pp. 637–694.

Useful for determination of genera; no American species are described.

J. Winnertz.—Beitrag zu einer Monographie der Sciarinen. <Verh. k. k. zool.-bot. Ges. in Wien, 1867.

BLEPHAROCERIDÆ.

H. Loew.—Revision der Blepharoceridæ. <Schles. Zeitschr. f. Entom., neue Folge, Heft VI, Breslau, 1877.

TIPULIDÆ.

C. R. Osten Sacken.—New genera and species of North American Tipulidæ with short palpi, with an attempt at a new classification of the tribe. With two plates. <Proc. Ac. Nat. Sc. Phil., 1859, pp. 197–256.

R. OSTEN SACKEN.—On the North American Tipulidæ (Part First). <Monographs of the Diptera of North America, Part IV, 1869.

A monograph of the North American Tipulidæ brevipalpi and the sections Cylindrotomina and Ptychopterina.

C. R. OSTEN SACKEN.—Studies on Tipulidæ. Part I. Review of the published genera of the Tipulidæ longipalpi. <Berliner entomol. Zeitschr. Vol. XXX, 1886, pp. 153–188.

XYLOPHAGIDÆ.

Fr. BRAUER.—Versuch einer Characteristik der Gattungen der Notacanthen (Ltr.), mit Rücksicht auf die im Kaiserlichen Museum befindlichen von Dr. J. R. Schiner aufgestellten neuen Gattungen. <Die Zweiflügler des Kais. Museums zu Wien, Vol. II, 1882, pp. 3–35.

The Notacantha Latreille comprise the families Xylophagidæ and Stratiomyidæ.

S. W. WILLISTON.—On the classification of North American Diptera. (Third paper.) <Entomolog. Amer., Vol. I, 1885, pp. 114–116.

Tables for distinguishing the families Stratiomyidæ and Xylophagidæ and oscillant genera; table of the genera of Xylophagidæ.

STRATIOMYIDÆ.

S. W. WILLISTON.—On the classification of North American Diptera (Third paper.) <Entomolog. Amer., Vol. I, 1885, pp. 114–116 and. 152–155.

Tables of the subfamilies and genera of the family.

TABANIDÆ.

C. R. OSTEN SACKEN.—Prodrome of a monograph of the Tabanidæ of the United States. <Memoirs of the Boston Soc. of Nat. Hist., Vol. II, 1875–'78.

Part I. The genera Pangonia, Chrysops, Silvius, Hæmotopota, Diabasis (*l. c.*, pp. 365–397). Part II. The genus Tabanus, with an Appendix and Index (*l. c.*, pp. 421–479). Supplement (*l. c.*, pp. 555–560).

S. W. WILLISTON.—On the classification of North American Diptera. (Second paper.) <Entomol. Amer., Vol. I, 1885, pp. 10–13.

Contains a synopsis of the genera of Tabanidæ, pp. 10–11.

LEPTIDÆ.

S. W. WILLISTON.—On the classification of North American Diptera. (Second paper.) <Entomol. Amer., Vol. I, 1885, pp. 10–13.

Table of the genera of North American Leptidæ.

ASILIDÆ.

C. R. OSTEN SACKEN.—Western Diptera, etc. <Bull. U. S. Geol. and Geogr. Survey of the Territories, Vol. III, No. 2, 1877.

Synoptical and analytical table of the Western species of Cyrtopogon, pp. 294–309.

S. W. WILLISTON.—On the North American Asilidæ (Dasypogoninæ, Laphrinæ), with a new genus of Syrphidæ. <Trans. Amer. Ent. Soc., Vol. XI, 1883, pp. 1–35, Pl. I, II.

Tabulates the genera of the subfamilies Dasypogoninæ and Laphrinæ, with enumeration of the species.

S. W. WILLISTON.—On the North American Asilidæ (Part II). <Trans. Amer. Ent. Soc., Vol. XII, 1885, pp. 53–76.

Tabulates the species of Laphria and revises the genera and species of the subfamily Asilinæ, excepting the genus Asilus.

MIDAIDÆ.

A. GERSTAECKER. — Systematische Uebersicht der bis jetzt bekannt gewordenen Mydaiden. <Stettiner ent. Zeit., 1868, p. 65.

NEMESTRINIDÆ.

S. W. WILLISTON.—The North American species of Nemestrinidæ. >Canad. Entom., Vol. XV, 1883, p. 69–72.

BOMBYLIIDÆ.

C. R. OSTEN SACKEN.—Western Diptera, etc. <Bull. U. S. Geolog. and Geog. Survey of the Territories, Vol. III, No. 2, 1877.

Analytical table of the North American genera of Bombyliidæ, p. 228; Tables of the species of Exoprosopa, p. 230; Anthrax, p. 238; Argyramœba, p. 241; Bombylius (species from the Atlantic States), p. 247; Ploas (Californian species), p. 260; Toxophora, p. 265; Epibates, p. 268.

D. W. COQUILLETT.—Monograph of the Lomatina of North America. <Canad. Entom., Vol. XVIII, 1886, pp. 81–87.

The Lomatina comprise the genera Eucessia, Leptochilus, Aphœbantus, and Oncodocera.

D. W. COQUILLETT.—The North American genera of Anthracina. <Canad. Entom., Vol. XVIII, 1886, pp. 157–159.

A tabular arrangement of the genera composing the subfamily Anthracina.

D. W. COQUILLETT.—Monograph of the species belonging to the genus Anthrax from America, north of Mexico. <Trans. Am. Ent. Soc., Vol. XIV, 1887, No. 2, pp. 159–182.

DOLICHOPODIDÆ.

H. LOEW.—On the North American Dolichopodidæ. <Monographs of the Diptera of North America. Part II, 1864.

SYRPHIDÆ.

S. W. WILLISTON.—Contribution to a monograph of the North American Syrphidæ. <Proc. Amer. Philos. Soc., Vol. XX, 1882, pp. 299–332.

S. W. WILLISTON.—On the classification of North American Diptera. (First paper.) <Bull. Brookl. Ent. Soc., Vol. VII, 1885, pp. 129–139.

A synopsis of the subfamilies and genera of Syrphidæ.

S. W. WILLISTON.—Synopsis of the North American Syrphidæ. <Bull. U. S. National Museum, No. 31, 1886.
This work supersedes the previous publications on this family.

CONOPIDÆ.

S. W. WILLISTON.—The North American species of Conops. <Trans. Conn. Acad., Vol. IV, 1882, pp. 325–342.

S. W. WILLISTON.—North American Conopidæ: Stylogaster, Dalmannia, Oncomyia. <Trans. Conn. Acad., Vol. VI, 1883, pp. 5–12.
A revision of the three genera mentioned.

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FRIEDRICH BRAUER.—Monographie der Oestriden. Wien, 1863.
Four supplements, by the same author, are published in Wiener Entom. Zeit., Vol. V, 1886, p. 289, tab. IV., Vol VI, 1887, p. 4, p. 71 and 217.

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S. W. WILLISTON.—North American Tachinidæ. Gonia. <Canad. Entom., Vol. XIX, 1887, pp. 6–12.
A revision of the species of Gonia.

SARCOPHAGIDÆ.

H. A. HAGEN.—List of North American Sarcophagidæ, examined by R. H. Meade, esq., Bradford, England. <Canad. Entom., 1881, Vol. XIII, pp. 146–150.

ANTHOMYIDÆ.

R. H. MEADE.—On the arrangement of the British Anthomyidæ. <Entomol. Month. Mag., Vol. XI, 1875.
Contains an analytical table of the genera.

H. A. HAGEN.—List of North American Anthomyidæ, examined by R. M. Meade, esq., Bradford, England. <Canad. Entomol., Vol. XIII, 1881, pp. 43–51.

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H. LOEW.—On the North American Sciomyzidæ. <Monographs of the Diptera of North America, Part I, 1862, pp. 103–128.

ORTALIDÆ.

H. LOEW.—The family Ortalidæ. <Monographs of the Diptera of North America, Part III, 1873, pp. 1–209.

TRYPETIDÆ.

H. LOEW.—On the North American Trypetidæ. <Monographs of the Diptera of North America, Part I, 1862, pp. 49–102.

H. Loew.—Review of the North American Trypetina. <Monographs of the Diptera of North America, Part III, 1873, pp. 211–347.

EPHYDRIDÆ.

H. Loew.—On the North American Ephydrinidæ. <Monographs of the Diptera of North America, Part I, 1862, pp. 129–172.

PULICIDÆ.

O. Taschenberg.—Die Flöhe. Die Arten der Insektenordnung Suctoria nach ihrem Chitinskelet monographisch dargestelit. Halle, 1880.

P. Mégnin.—Les parasites et les maladies parasitaires chez l'homme, les animaux domestiques et les animaux sauvages avec lesquels ils peuvent être en contact. Insectes, Arachnides, Crustacés. Paris, 1880.

The Pulicidæ (Aphaniptères) are treated of on pp. 57–71.

HEMIPTERA.

Heteroptera.

I.—CATALOGUES AND CHECK-LISTS.

F. A. DOHRN.—Catalogus Hemipterorum. Stettin, 1859.

PHILIP R. UHLER.—Check-List of the Hemiptera Heteroptera of North America. Published by the Brooklyn Entom. Soc., 1886.

II.—GENERAL WORKS ON CLASSIFICATION.

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C. STÅL.—Recensio orthopterorum. Revue critique des orthoptères décrits par Linné, De Geer et Thunberg. (Part 2.) Stockholm, 1874.
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Division of Entomology, Bulletin No. 11.—Reports of Experiments with various Insecticide Substances, chiefly upon Insects affecting garden Crops, made under the Direction of the Entomologist. (1886.) [pp. 34.]

Division of Entomology, Bulletin No. 12.—Miscellaneous Notes on the work of the Division of Entomology for the Season of 1885; prepared by the Entomologist. (1886.) [pp. 45, plates I.]

Division of Entomology, Bulletin No. 13.—Reports of Observations and Experiments in the practical Work of the Division, made under the Direction of the Entomologist. (With illustrations.) (1887.) [pp. 78, figs. 4.]

Division of Entomology, Bulletin No. 14.—Reports of Observations and Experiments in the practical Work of the Division, made under the Direction of the Entomologist. (1887.) [pp. 62, figs. 2, plates I.]

Division of Entomology, Bulletin No. 15.—The Icerya, or Fluted Scale, otherwise known as the Cottony Cushion-scale. (Reprint of some recent Articles by the Entomologist and of a Report from the Agricultural Experiment Station, University of California.) (1887.) [pp. 40.]

Division of Entomology, Bulletin No. 16.—The Entomological Writings of Dr. Alpheus Spring Packard. By Samuel Henshaw. (1887.) [pp. 49.]

Division of Entomology, Bulletin No. 17.—The Chinch Bug: A general Summary of its History, Habits, Enemies, and of the Remedies and Preventives to be used against it. By L. O. Howard, M. S., Assistant Entomologist. (1888.) [pp. 48, figs. 10.]

Report on Cotton Insects. By J. Henry Comstock. (1879.) [pp. 511, figs. 77, plates III.]

Special Report, No. 11.—The Silkworm; being a brief Manual of Instructions for the Production of Silk. Prepared, by Direction of the Commissioner of Agriculture, by C. V. Riley, M. A., Ph. D., Entomologist. (First ed., 1879; fifth ed., 1885.) [p. 37, figs. 8.]

Special Report, No. 35.—Report on Insects injurious to Sugar Cane. Prepared, under Direction of the Commissioner of Agriculture, by J. Henry Comstock, Entomologist. (1881.) [pp. 11, figs. 3.]

Division of Entomology. Insects Affecting the Orange.—Report on the Insects affecting the Culture of the Orange and other Plants of the Citrus Family, with practical Suggestions for their Control or Extermination. By H. G. Hubbard. (1885.) [pp. x+227, figs. 95, plates XIV.]

NOTE.—During the years 1864 to 1876, inclusive, the Department of Agriculture published regularly monthly reports, mainly statistical in their character (replaced since 1876 by the series of monthly "Crop Reports"), but which contained many short articles by the Entomologist, Townend Glover. None of these articles would come within the scope of the present bulletin, and the insects treated of may be ascertained by reference to the "General Index of the Agricultural Reports of the Patent Office and of the Department of Agriculture, from 1837 to 1876." Washington, 1879.

HOW TO OBTAIN ENTOMOLOGICAL BOOKS AND PAMPHLETS.

Comparatively few of the works treating of the classification of North American insects have been published as separate books; but such as have been so published, if of comparatively recent date, can be obtained through the regular book trade. By far the greater number of the monographs and synopses mentioned in the preceding pages have been published in scientific periodicals and transactions of scientific societies. These periodicals and transactions can be obtained through the societies which publish them and through the publishers; but, in the case of transactions, single volumes, and more especially single papers, are seldom sold, and the older volumes are liable to be out of print. Moreover the expense attending the purchase of all of the periodicals containing the publications on a given order of insects will be so great as to put them beyond the reach of most entomologists. The custom of placing at the disposal of authors a number of separate copies of their papers overcomes this difficulty to some extent and creates a small supply. Thus it often happens that a person interested can obtain a copy of a scientific paper by addressing the author personally. Many of these separate copies also get into the possession of dealers in second-hand books, and can be purchased from them. The American Entomological Society of Philadelphia and also a few other societies here and in Europe offer for sale from their duplicates many of these authors' extras, and in some cases publish lists. There are, moreover, certain business establishments which make a specialty of the sale of works and pamphlets on Natural History, including Entomology, and it is chiefly through such establishments that the student is enabled to secure the larger portion of the works needed. In America there is at present but one of these special dealers of any prominence, viz, Dr. A. E. Foote, of 1223 Belmont avenue, Philadelphia, Pa. But in Europe there are several of considerable reputation; among these we may mention:

R. Friedlaender & Sohn, Carlstrasse, 11, Berlin, Germany.
Ed. André, 21 Boulevard Bretonnière, Beaune (Côte-d'Or), France.
H. W. Schmidt, Rannische Strasse, Nr. 1, Halle a. S, Germany.
J. B. Baillière et fils, 19, Rue Hautefeuille, Paris, France.
Oswald Weigel, Königsstrasse, 1, Leipzig, Germany.
U. Hoepli, Corso Vitt. Eman., 37, Milan, Italy.
Otto Harrassowitz, Querstrasse, 14, Leipzig, Germany.
William Wesley & Son, 28 Essex street, Strand, London, England.

All of these firms publish catalogues, and in writing to them the entomological catalogue should be especially asked for. There are two firms in New York which act as agents for all of these houses, and works can be ordered through them or catalogues obtained from them. These are

B. Westermann & Co., 838 Broadway, New York, and Gustav E. Stechert, 766 Broadway, New York.

By subscribing to the entomological periodicals published in this country (a matter of but slight expense) the student may keep abreast of the current literature. Short book reviews or notes published in our periodicals call attention to the more important publications in other countries. Moreover, the Zoölogischer Anzeiger, edited by Prof. J. Victor Carus, in Leipzig, Germany, and published every fortnight, gives a tolerably complete bibliography of the current entomological literature at intervals of about six or eight weeks. The "Naturæ Novitates," published every fortnight by R. Friedlaender & Sohn, Carlstrasse, 11, Berlin, Germany, gives the titles of most recent works and pamphlets.

There are also three great annual publications, viz: "Die Fortschritte auf dem Gebiet der Entomologie," published in Wiegmann's "Archiv für Naturgeschichte"; "The Zoölogical Record," published by the Zoological Record Society, in London, England; and the "Zoölogische Jahresberichte," published by the Zoölogical Station at Naples, Italy, which give the full literature of the previous year, discussing the more important papers and giving a list of the new species, besides other information. One or the other of these three publications is almost indispensable to the student in any branch of Zoölogy, and ought to be found in every public library in the country. Unfortunately, only a year ago the editors of the "Zoölogische Jahresberichte" found it necessary, in order to reduce expenses, to curtail the scope of the work; so that, beginning with the year 1887, this publication no longer contains titles upon systematic and classificatory Zoölogy. Only biological titles are now published, but the series up to 1887 is the most complete thing of its kind.

A not inconsiderable portion of the North American literature on the classification of insects has been published by the General Government through various channels, and foremost among them are the Smithsonian Institution, the U. S. Department of Agriculture, the U. S. National Museum, the U. S. Geological and Geographical Survey, and the reports of the various surveys of the Territories. Many of these publications are distributed free of cost to any one applying for them; while others, like certain of the Smithsonian publications, are sold at a moderate price to cover the cost of publication. Many of them are out of print, and can only be obtained through natural history book-dealers. The firms mentioned above will have many of them, and Lowdermilk & Co., of Washington, D. C., who make a specialty of Government publications, are always able to furnish many more.

Of the more general works, some of them can be obtained direct from the publishers, and in such cases the publishers are mentioned in the general list. The older ones are mostly out of print and can only be obtained from second-hand dealers. The current State reports of Lint-

ner and Forbes can be obtained from the secretaries of the respective State Agricultural Societies at Albany, N. Y., and Springfield, Ill., while the reports of the Entomologists of the newly established State Experiment Stations, of which a large number will soon be published, can be obtained from the directors of the respective Stations. The older reports of the State Entomologist of Missouri and the State Entomologists of Illinois (Walsh, Le Baron, and Thomas) are all out of print and can only be obtained by purchase from second-hand dealers. The same may be said of the well-known and often quoted reports of Dr. Fitch, which were published with the old volumes of the Transactions of the New York State Agricultural Society.

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